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would be a shocking limitation of that which by definition is unlimited. In the first place the One is not susceptible to a passion; it is impassive, as the pure soul is. In the second place there is nothing outside it. The One is all-inclusive; it absorbs even time into eternity. So it includes individual souls. Yet, since souls advance towards things which are like themselves and seek union with them (*Enn.*, I., vi, 2)—a principle also of Greek physics, I believe—so now, having become similar to the One and in its presence, they throw themselves into it, forgetting whether they are men, or animals, or essences, or the whole (*Enn.*, VI., vii, 34).

This is the banquet at which the soul achieves adequate knowledge of the One. It should not be considered a rejection of ordinary knowledge, but a development of it. The object is different. Since the object can not change to suit the limitations of the subject, the subject must change to fit the needs of the object. In knowing the One, the problem is to make the soul infinite in scope, perfect, indefinable. And since there can not be two beings so characterized, the result was bound to be a coalition. But the reason for the coalition can be found, not merely in Plotinus's quaint desire to be mystical, but in the fundamental principles of his theory of cognition.

One word in conclusion. Knowledge of this sort is bound to be incommunicable, as all self-conscious mystics have recognized. It is only knowledge which is discursive which is communicable. Hence the only way to pass along the knowledge one apprehends in ecstasy is arousing the sentiments which characterize the ecstasy. That is why Plotinus could have urged that philosophers contemplate the beautiful and turn their thoughts from formal logic which, he says (*Enn.*, I., iii, 5), is to dialectics what writing is to thought.

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REVIEWS AND ABSTRACTS OF LITERATURE

Psychologie du Raisonnement. EUGENIO RIGNANO. Paris: Alcan. 1920. Pp. xi + 544.

M. Rignano, the editor of the journal *Scientia*, and probably best known in this country as a biologist, attempts in this study a task which for the most part psychologists have been very chary of undertaking; and the wealth of suggestion and illumination that his broad scientific background is able to bring to it makes the American somewhat envious of the ease with which the French and the Italians can disregard the boundaries of the individual *fach* in the interests of a more comprehensive truth. M. Rignano, more-

over, betrays a most uncommon familiarity with American psychological investigation, citing it almost as freely as the work of the older civilizations. One wishes that he were acquainted with the more recent developments of behaviorism, and especially, since his conclusions point to a somewhat similar viewpoint, that he had heard of Professor Dewey's *How We Think*. But as it is the apparent independence with which the Italian savant has reached his position serves to corroborate the findings of Professor Dewey, emphasizing as well as throwing much new light upon the purposive nature of the thinking process.

Starting from a positivistic and experimental point of view, and acknowledging a debt of gratitude to Mill's logic, M. Rignano regards reasoning as a function that has naturally developed in the history of the race as an instrument towards the better adaptation of the organism to its environment. Consciousness itself arises in the conflict between the competing "affective tendencies" with which the organism is furnished and which determine the ends of its activity while leaving the way open for an indefinite number of possible solutions. The core of the thinking process consists in the possibility of exploring in imagination the various suggested ways of attaining the desired goal—of performing imaginatively experiments whose successful conclusion will enable the man to solve the difficulty without recourse to the method of actual trial and error. Logical thought is distinguished from mere random thinking by being at all times subject to the control and guidance of a definite end or purpose, and is valid only in so far as the imaginative experimentation in which it consists is capable of actual verification.

With this conception of the nature and function of the thinking process as a basis, M. Rignano turns to a consideration of its evolution. Reason has become increasingly abstract through the grouping together of objects which for our purposes are "equivalent" in that they possess certain attributes in common. Classification and abstraction are a teleological process which brings to bear knowledge already learned and thus paves the way for the acquisition of further facts. Simultaneously reason has advanced from a simple process of intuition or the immediate jumping at conclusions to the detailed and elaborated processes of scientific deduction, which are but an intricate form of oscillation between the formation of new generalizations and the imaginative experimental elaboration to which they are subjected in the interests of the desired end.

The most interesting portion of the book to those already familiar with this mode of approach is the chapters devoted to the higher forms of reasoning, of which M. Rignano distinguishes two sorts, that represented by mathematical science, whose end is the

attainment of truth, and that represented by legal and syllogistic dialectic and by metaphysics, whose aim is purely apologetic and menial. It can hardly be said that he succeeds fully in extending his experimentalism to mathematics; but he marks a real advance upon the classic pages of Mill, and his criticism of modern mathematical logic should be read by all who regard logistic as something more than a fascinating game. His positivist heritage leads him into a rather undue disparagement of all forms of reasoning which aim at anything more "interested" than pure scientific truth; and though he recognizes that the desire for knowledge is as much an "affective tendency" as any other, he somewhat weakens the force of his earlier biological argument by digging too deep a gulf between scientific and "interested" thinking. After all, there is as much conceit in thinking you can get the universe into your mind as in reading your mind into the universe.

M. Rignano has by no means written a definitive analysis of the reasoning process, but he has written one to which all who are interested in the workings of the human mind can turn with profit. He stands in the tradition of both Mill and James, and in his biological studies he has found a starting point for a very fruitful and refreshingly naturalistic treatment of a field whose possibilities are so limitless as to frighten off most intruders. That he tells the whole story of thought the realists may indeed question; but that he has given us one of the best honest and straightforward accounts of the actual workings of the mind we yet possess no one can doubt.

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JOURNALS AND NEW BOOKS

JOURNAL OF EDUCATIONAL PSYCHOLOGY. January, 1921. Vol. XII, No. 1. *Announcement of the Reorganization of the Journal of Educational Psychology* (pp. 1-2).—The journal will be devoted primarily to the scientific study of problems of learning and teaching. The purpose is to make it a clearing house for the discussion of scientific investigation and experimentation. Series of articles will be organized, discussion departments created, pertinent educational publications in the field will be promptly reviewed. *The Interpretation and Application of the Intelligence Quotient* (pp. 3-13): FRANK N. FREEMAN.—The purpose is to discuss the relationship between the I.Q. as a measure of mental capacity of the individual and the facts of mental development. *Mental age* is an absolute measure, but *mental age difference* is a relative term. It expresses the individual's superiority or inferior-